

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
**ERRATICO**

Serial No. **Not yet assigned**

Filing Date: **Herewith**

For: **INTEGRATED STRUCTURE**

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EXPRESS MAIL NO: EL769467794US  
DATE OF DEPOSIT: July 5, 2001  
NAME: Alex Greene

SIGNATURE: *Alex Greene*

PRELIMINARY AMENDMENT

Director, U.S. Patent and Trademark Office  
Washington, D.C. 20231

Sir:

Prior to the calculation of fees and examination of  
the present application, please enter the amendments and  
remarks set out below.

In the Claims:

Please cancel Claims 1 to 11.

Please add new Claims 12 to 31.

12. An integrated structure comprising:  
a substrate having a first conductivity type;  
an epitaxial layer on said substrate and having the  
first conductivity type and a conductivity less than a  
conductivity of said substrate;

first and second regions in said epitaxial layer  
each having a second conductivity type opposite the first  
conductivity type, said first and second regions extending

In re Patent Application of  
**ERRATICO**  
Serial No. **Not Yet Assigned**  
Filed: **Herewith**

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from a surface of said epitaxial layer opposite said substrate into said epitaxial layer to form respective first and a second junctions therewith; and

an isolating element positioned between said first and said second regions and extending from the surface of said epitaxial layer at least as far as said substrate for reducing an injection of current through said epitaxial layer from said first region to said second region when the first junction is directly biased, said isolating element comprising a dielectric material adjacent said epitaxial layer and polycrystalline silicon spaced apart from said epitaxial layer by said dielectric material.

13. The integrated structure according to Claim 12 wherein said isolating element at least partially surrounds said first region.

14. The integrated structure according to Claim 12 wherein said integrated structure is formed on a semiconductor chip; and wherein said isolating element has a length substantially equal to a width of the semiconductor chip and divides the semiconductor chip into two portions each respectively including said first region and said second region.

15. The integrated structure according to Claim 12 wherein the first conductivity type is P type.

16. The integrated structure according to Claim 12 wherein said first region comprises a power transistor for controlling an inductive load.

In re Patent Application of  
**ERRATICO**  
Serial No. **Not Yet Assigned**  
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17. An integrated structure comprising:  
a substrate having a first conductivity type;  
an epitaxial layer on said substrate and having the  
first conductivity type and a conductivity less than a  
conductivity of said substrate;

first and second regions in said epitaxial layer  
each having a second conductivity type opposite the first  
conductivity type, said first and second regions extending  
from a surface of said epitaxial layer opposite said substrate  
into said epitaxial layer to form respective first and a  
second junctions therewith; and

an isolating element positioned between said first  
and said second regions and extending from the surface of said  
epitaxial layer at least as far as said substrate, said  
isolating element partially surrounding at least one of said  
first and second regions.

18. The integrated structure according to Claim 17  
wherein said isolating element comprises a dielectric  
material.

19. The integrated structure according to Claim 18  
wherein said isolating element further comprises  
polycrystalline silicon.

20. The integrated structure according to Claim 17  
wherein the first conductivity type is P type.

21. The integrated structure according to Claim 17  
wherein said first region comprises a power transistor for  
controlling an inductive load.

In re Patent Application of  
**ERRATICO**  
Serial No. **Not Yet Assigned**  
Filed: **Herewith**

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22. An integrated structure formed on a semiconductor chip and comprising:

a substrate having a first conductivity type;

an epitaxial layer on said substrate and having the first conductivity type and a conductivity less than a conductivity of said substrate;

first and second regions in said epitaxial layer each having a second conductivity type opposite the first conductivity type, said first and second regions extending from a surface of said epitaxial layer opposite said substrate into said epitaxial layer to form respective first and a second junctions therewith; and

an isolating element positioned between said first and said second regions and extending from the surface of said epitaxial layer at least as far as said substrate, said isolating element having a length substantially equal to a width of the semiconductor chip and dividing the semiconductor chip into two portions each respectively including said first and said second regions.

23. The integrated structure according to Claim 22 wherein said isolating element comprises a dielectric material.

24. The integrated structure according to Claim 23 wherein said isolating element further comprises polycrystalline silicon.

25. The integrated structure according to Claim 22 wherein the first conductivity type is P type.

In re Patent Application of  
**ERRATICO**  
Serial No. **Not Yet Assigned**  
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26. The integrated structure according to Claim 22 wherein said first region comprises a power transistor for controlling an inductive load.

27. A method for making an integrated structure comprising:

providing a substrate having a first conductivity type;

growing an epitaxial layer on the substrate having the first conductivity type and a conductivity less than a conductivity of the substrate;

forming first and a second regions in the epitaxial layer having a second conductivity type opposite the first conductivity type, the first and second regions extending from a surface of the epitaxial layer opposite the substrate into the epitaxial layer to form respective first and a second junctions therewith; and

forming an isolating element for reducing an injection of current through the epitaxial layer from the first to the second region when the first junction is directly biased by

forming a trench between the first and second regions extending from the surface of the epitaxial layer at least as far as the substrate,

forming a dielectric material layer in the trench, and

forming polycrystalline silicon on the dielectric material layer to fill the trench.

In re Patent Application of  
**ERRATICO**  
Serial No. **Not Yet Assigned**  
Filed: **Herewith**

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28. The method according to Claim 27 wherein forming the isolating element comprises forming the isolating element to at least partially surround the first region.

29. The method according to Claim 27 wherein the integrated structure is formed on a semiconductor chip; and wherein forming the isolating element comprises forming the isolating element to have a length substantially equal to a width of the semiconductor chip and to divide the semiconductor chip into two portions each respectively including the first region and the second region.

30. The method according to Claim 27 wherein the first conductivity type is P type.

31. The method according to Claim 27 wherein forming the first region comprises forming a power transistor for controlling an inductive load.

#### **REMARKS**

It is believed that all of the claims are patentable over the prior art. For better readability and the Examiner's convenience, the newly submitted claims differ from the translated counterpart claims which are being canceled. The newly submitted claims do not represent changes or amendments that narrow the claim scope for any reason related to the statutory requirements for patentability.

Accordingly, after the Examiner completes a thorough examination and finds the claims patentable, a Notice of Allowance is respectfully requested in due course. Should the

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Serial No. **Not Yet Assigned**  
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Examiner determine any minor informalities that need to be addressed, he is encouraged to contact the undersigned attorney at the telephone number below.

Respectfully submitted,



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